

ABSTRACT

Techniques for surface exploration and monitoring are presented. In representative embodiments, a system is provided that can perform multiple types of measurements of a surface. For example a single system of survey probes and one or more survey controllers can be used to offer both seismic and electrical measurements. A survey controller can be configured to automatically poll survey probes to obtain identifiers of the probes and determine a relative order the probes. Survey probes can be configured to: (a) collect signals associated with a surface; (b) digitize the signals to form digital data; and (c) store the digital data for later transmission to the survey controller. Relative positions of survey probes can be automatically determined using a transmitting beacon or other techniques. Survey probes can automatically disconnect from a power conduit while measuring a surface property and operate using an internal source of power when disconnected, to reduce noise. The survey controller can be remotely accessible through a computer network for remote control of the survey probes.